WHAT IS CLAIMED IS:

1. A detector for detecting a foreign object caught in a window glass of a vehicle having an engine when the window glass is moved by a power window apparatus that is provided with power supply voltage from the vehicle, the detector comprising:

a parameter detection unit for detecting at least one parameter that changes as the power supply voltage to the power window apparatus changes;

a determination target value calculation unit, connected to the parameter detection unit, for calculating a determination target value based on the at least one parameter detected by the parameter detection unit;

a determination unit for comparing the determination target value with a predetermined determination threshold and determining whether a foreign object has been caught based on a result of the comparison;

an engine-stop detection unit for detecting whether the engine of the vehicle is stopped; and

a threshold change unit for changing, when the engine-stop detection unit detects that the engine is stopped, the determination threshold so that the probability of the determination unit determining that a foreign object has been caught is lower than that when the engine is being operated.

2. The detector according to claim 1, wherein the vehicle includes an ignition switch connected to the engine-stop detection unit and is switchable to different positions, including an ON position, an accessory position, an OFF position, and a lock position, the ignition switch providing the engine-stop detection unit with an ignition-OFF operation signal when switched from the ON position to one of the accessory position, the OFF position, and the

lock position, and the engine-stop detection unit detects that the engine is stopped in response to the ignition-OFF operation signal.

3. The detector according to claim 1, further comprising:

a timer unit that is actuated when the engine-stop detection unit detects that the engine is stopped, the timer unit providing the threshold change unit with a count-up signal when a predetermined time elapses after the engine is stopped, wherein the threshold change unit returns the determination threshold to the value used before the engine is stopped in response to the count-up signal provided from the timer unit.

4. The detector according to claim 1, wherein the determination threshold includes a first determination threshold and a second determination threshold larger than the first determination threshold, and the threshold change unit uses the first determination threshold when the engine-stop detection unit does not detect that the engine is stopped and uses the second determination threshold when the engine-stop detection unit detects that the engine is stopped.

5. The detector according to claim 1, wherein,

the power window apparatus includes a motor, connected to the parameter detection unit, for moving the window glass;

the parameter detection unit detects rotational speed of the motor, generates a pulse signal having a cycle that is in accordance with the rotational speed of the motor, and provides the determination target value calculation unit with the pulse signal; and

the determination target value calculation unit

calculates the determination target value based on the pulse signal.

6. A detector for detecting a foreign object caught in a window glass of a vehicle having an engine when the window glass is moved by a motor, the detector comprising:

a sensor, connected to the motor, for detecting rotational speed of the motor and generating a sensor signal according to the rotational speed of the motor; and

a microcomputer, connected to the sensor, for calculating a determination target value based on the sensor signal provided from the sensor, comparing the determination target value with a first determination threshold when the engine of the vehicle is being operated, comparing the determination target value with a second determination threshold during a period from when the engine of the vehicle is stopped to when a predetermined time elapses after the engine is stopped, and determining whether a foreign object has been caught based on a result of the comparison.

7. The detector according to claim 6, wherein the motor is connected to an electrical power supply that supplies the motor with power, and the predetermined time is the time from when the engine of the vehicle is stopped to when voltage of the electrical power supply that supplies the motor with power is stabilized.

8. A power window apparatus for mounting on a vehicle having an engine, an electrical power supply and a window glass for connection to the electrical power supply and opening and closing the window glass of the vehicle, the power window apparatus comprising:

a window switch operated to open or close the window glass and for outputting an opening-operation signal or a

closing-operation signal;

a motor used to open and close the window glass and for connection to the electrical power supply;

a motor control unit, connected to the motor, for controlling the motor, wherein the motor control unit rotates the motor in a forward direction in response to the opening-operation signal provided from the window switch, and rotates the motor in a reverse direction in response to the closing-operation signal provided from the window switch; and

a detector, connected to the window switch and the motor control unit, for detecting whether a foreign object has been caught in the window glass, the detector including:

a parameter detection unit for detecting at least one parameter that changes as voltage of the electrical power supply connected to the motor changes;

a determination target value calculation unit, connected to the parameter detection unit, for calculating a determination target value based on the at least one parameter detected by the parameter detection unit;

a determination unit for comparing the determination target value with a predetermined determination threshold and determining whether a foreign object has been caught based on a result of the comparison;

an engine-stop detection unit for detecting whether the engine of the vehicle is stopped; and

a threshold change unit for changing, when the engine-stop detection unit detects that the engine is stopped, the determination threshold so that the probability of the determination unit determining that a foreign object has been caught is lower than that when the engine is being operated,

wherein the motor control unit controls the motor to stop or open the window glass when the detector detects that a foreign object has been caught in the window glass.

9. A power window apparatus for mounting on a vehicle having an engine and a window glass for opening and closing the window glass of the vehicle, the power window apparatus comprising:

a window switch operated to open or close the window glass and for outputting an opening-operation signal or a closing-operation signal;

a motor used to open and close the window glass;

a motor driving circuit, connected to the motor, for controlling the motor;

a sensor, connected to the motor, for detecting rotational speed of the motor and generating a sensor signal according to the rotational speed of the motor; and

a microcomputer, connected to the window switch, the sensor and the motor driving circuit, for calculating a determination target value based on the sensor signal provided from the sensor, comparing the determination target value with a first determination threshold when the engine of the vehicle is being operated, comparing the determination target value with a second determination threshold during a period from when the engine of the vehicle is stopped to when a predetermined time elapses after the engine is stopped, determining whether a foreign object has been caught in the window glass based on a result of the comparison, and when determining that a foreign object has been caught, generating a driving control signal to control the motor to stop or open the window glass, and providing the motor driving circuit with the driving control signal.

10. A method for detecting whether a foreign object has been caught in a window glass of a vehicle having an engine when the window glass is moved by a power window apparatus connected to an electrical power supply, the

method comprising:

detecting at least one parameter that changes as voltage of the electrical power supply connected to the power window apparatus changes;

calculating a determination target value based on the detected parameter;

comparing the determination target value with a first determination threshold;

determining whether a foreign object has been caught based on a result of the comparison between the determination target value and the first determination threshold; and

changing a target threshold with which the determination target value is to be compared from the first determination threshold to a second determination threshold when the engine of the vehicle is stopped so that the probability of determining that a foreign object has been caught is lower than that when the engine is being operated.

11. The method according to claim 10, further comprising:

changing a target threshold from the second determination threshold to the first determination threshold when the voltage of the electrical power supply is stabilized after the engine of the vehicle is stopped.

12. The method according to claim 10, wherein the power window apparatus includes a motor for moving the window glass and said detecting at least one parameter includes detecting rotational speed of the motor for moving the window glass.

13. A computer-readable medium comprising a program recorded thereon for detecting whether a foreign object has been caught in a window glass of a vehicle having an engine

when the window glass is moved by a power window apparatus connected to an electrical power supply, the program when executed by a computer causing the computer to perform steps including:

detecting at least one parameter that changes as voltage of the electrical power supply connected to the power window apparatus changes;

calculating a determination target value based on the detected parameter;

comparing the determination target value with a first determination threshold;

determining whether a foreign object has been caught based on a result of the comparison between the determination target value and the first determination threshold; and

changing a target threshold with which the determination target value is to be compared from the first determination threshold to a second determination threshold when the engine of the vehicle is stopped so that the probability of determining that a foreign object has been caught is lower than that when the engine is being operated.

14. The medium according to claim 13, wherein the program further causes the computer to perform steps including:

changing the target threshold from the second determination threshold to the first determination threshold when the power supply voltage is stabilized after the engine of the vehicle is stopped.

15. The medium according to claim 13, wherein the power window apparatus includes a motor for moving the window glass and said detecting at least one parameter includes detecting rotational speed of the motor for moving the window glass.